WHAT IS CLAIMED IS:

1. A modular microchannel apparatus for analysis for an analyte, comprising:

(a) separation unit including a microchannel, in which the analyte can be driven to pass through the microchannel due to molecular characteristics thereof, the time for the analyte to pass through the microchannel being indicative of the molecular characteristics of the analyte; and

(b) reservoir unit having one or more reservoirs having dimensions compatible with the separation unit for coupling operatively modularly with the separation unit to supply liquid reagents thereto, the reservoirs having prepackaged liquid reagents therein before the reservoir unit is coupled with the separation unit.

2. An apparatus according to claim 1 wherein the separation unit is chip-shaped and formed from a first half and a second half each having a substantially planar surface facing and joining the other half, at least one of the planar surface having a channel thereon such that the two surfaces joining together to form the microchannel from the channel.

3. An apparatus according to claim 1 wherein the separation unit has one or more openings leading to the microchannel to admit the liquid reagents such that when the separation unit and the reservoir unit are operatively modularly coupled the

openings are aligned with the reservoirs for the liquid reagents to pass from the reservoirs into the microchannel without substantial leakage.

4. An apparatus according to claim 2 wherein the separation unit includes a substrate made of a material other than silicon or silicon dioxide on which the microchannel has been formed by laser-ablation.

5. An apparatus according to claim 2 wherein the reservoir unit includes a membrane covering at least one of the reservoirs confining the prepackaged liquid regent therein, the membrane being penetratable with a probe for applying driving force to drive movement of chemicals from the reservoir through the microchannel when the separation unit and the reservoir unit are operatively modularly coupled together.

6. An apparatus according to claim 2 wherein both the planar surface of the first half and the planar surface of the second half have a channel laser-ablated thereon, the channel of the first half and the channel of the second half joining together to form the microchannel.

7. An apparatus according to claim 2 wherein the channel is formed by laser ablation.

8. An apparatus according to claim 2 further comprising a powering plate for operatively modularly coupling with the reservoir unit, the powering plate having electrical communication to at least a portion of the reservoirs to provide a driving force for driving reagents from the reservoir through the microchannel.

9. An apparatus according to claim 8 wherein the powering plate comprises probes for inserting into the reservoir unit to provide electrical communication thereto.

10. An apparatus according to claim 2 further comprising a peltier plate for operatively modularly operatively coupling to the separation chip for controlling the temperature thereof

11. An apparatus according to claim 10 wherein the peltier plate can be used to heat or cool the separation unit by selecting an appropriate mode of operation.

12. An apparatus according to claim 11 further comprising a heat exchanger operatively connected to the peltier plate to transfer heat between the peltier plate and the surrounding.

13. A modular microchannel apparatus for analysis an analyte, comprising:

(a) separation unit including a microchannel, in which the analyte can be driven to pass through the microchannel due to molecular characteristics thereof, the

separation unit being chip-shaped and formed from a first half and a second half each having a substantially planar surface facing and joining the other half, at least one of the planar surface having a channel laser ablated theron such that the two surfaces joining together to form the microchannel from the laser-ablated channel the time for the analyte to pass through the microchannel being indicative of the molecular characteristics of the analyte, the separation unit has one or more openings leading to the microchannel to admit liquid reagents;

(b) reservoir unit having one or more reservoirs and having dimensions compatible with the separation unit for coupling operatively modularly with the separation unit to supply liquid reagents thereto such that when the separation unit and the reservoir unit are operatively modularly coupled the openings are aligned with the reservoirs for the liquid reagents to pass from the reservoirs into the microchannel without substantial leakage, the reservoirs having prepackaged liquid reagents therein before the reservoir unit is coupled with the separation unit, the reservoir unit includes a membrane covering at least one of the reservoirs confining the prepackaged liquid regent therein, the membrane being penetratable with a probe for applying driving force to drive movement of chemicals from the reservoir through the microchannel when the separation unit and the reservoir unit are operatively modularly coupled together; and

(c) a powering plate for operatively modularly coupling with the reservoir unit, the powering plate having probes for inserting into at least a portion of the reservoirs to provide a driving force for driving reagents from the reservoir

through the microchannel; and a peltier plate for operatively modularly operatively coupling to the separation chip for controlling the temperature thereof.

14. A method for making a modular microchannel apparatus for analysis an analyte, comprising:

(a) providing a separation unit including a microchannel, in which the analyte can be driven to pass through the microchannel due to molecular characteristics thereof, the time for the analyte to pass through the microchannel being indicative of the molecular characteristics of the analyte; and

(b) providing a reservoir unit having one or more reservoirs operatively modularly couplable with the separation unit to supply liquid reagents thereto, the reservoirs having prepackaged liquid reagents therein before the reservoir unit is coupled with the separation unit.

15. A method according to claim 14 further comprising operatively modularly coupling the separation unit and the reservoir unit.

16. A method according to claim 15 comprising joining a first half and a second half to form the separation unit, each half having a substantially planar surface facing and joining the other half, at least one of the planar surface having a channel laser ablated thereon such that the two surfaces joining together to form the microchannel from the laser-ablated channel.

17. A method according to claim 15 further comprising making one or more openings in the separation unit leading to the microchannel to admit the liquid reagents such that when the separation unit and the reservoir unit are operatively modularly coupled the openings are aligned with the reservoirs for the liquid reagents to pass from the reservoirs into the microchannel without substantial leakage.

18. A method according to claim 15 further comprising laser-ablating a substrate made of a material other than silicon or silicon dioxide to form the microchannel.

19. A method according to claim 15 comprising operatively modularly coupling a powering plate with the reservoir unit such that the powering plate having probes inserting into at least a portion of the reservoirs to provide a driving force for driving reagents from the reservoir through the microchannel.

20. A method according to claim 19 further comprising operatively modularly coupling a peltier plate with the separation heat or cool the separation unit by selecting an appropriate mode of operation.

21. A method according to claim 20 further comprising operatively modularly coupling a heat exchanger to the peltier plate to transfer heat between the peltier plate and the surrounding.

22. A method for analyzing an analyte in a liquid sample, comprising:

(a) providing a separation unit including a microchannel, in which the analyte can be driven to pass through the microchannel due to molecular characteristics thereof, the time for the analyte to pass through the microchannel being indicative of the molecular characteristics of the analyte;

(b) operatively modularly coupling a reservoir unit having one or more reservoirs with the separation unit to supply liquid reagents thereto, the reservoirs having prepackaged liquid reagents therein before the reservoir unit is coupled with the separation unit; and

(c) driving the analyte through the microchannel based on the molecular characteristics of the analyte.

23. A method according to claim 22 wherein the separation unit has one or more openings into the microchannel and the method further comprising aligning the openings with the reservoirs and operatively modularly coupling the separation unit with the reservoir unit such that the one or more openings in the separation unit lead from the reservoirs into the microchannel to admit the liquid reagents from the reservoirs without substantial leakage.

24. A method according to claim 22 comprising operatively modularly coupling a powering plate with the reservoir unit such that the powering plate has probes inserting into at least a portion of the reservoirs to provide a driving force for driving reagents from the reservoir through the microchannel.

25. A kit for making a microchannel apparatus for analysis an analyte, comprising:

(a) separation unit including a microchannel, in which the analyte can be driven to pass through the microchannel due to molecular characteristics thereof, the time for the analyte to pass through the microchannel being indicative of the molecular characteristics of the analyte; and

(b) reservoir unit having one or more reservoirs for coupling operatively modularly with the separation unit to supply liquid reagents thereto, the reservoirs having prepackaged liquid reagents therein.